STATEMENT OF BASIS

Hog Bayou Energy Center
Mobile Energy, LLC
Mobile, Alabama
503-8066

The proposed renewal to the Title V Major Source Operating Permit is issued under the provisions of ADEM Admin. Code R. 335-3-16. The applicant has requested authorization to perform the work or operate the facility shown on the application and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit. This permit would not allow the emission of additional air pollutants.

Hog Bayou Energy Center (Hog Bayou) was issued its existing Major Source Operating Permit (MSOP) on June 14, 2011, with an expiration date of June 13, 2016. Per ADEM Rule 335-3-16-.12(2), an application for permit renewal shall be submitted at least six (6) months, but not more than eighteen (18) months, before the date of expiration of the permit. Based on this rule, the application for renewal was due to the Department no later than December 13, 2015, but no earlier than December 13, 2014. An application for permit renewal was received by the Department on December 11, 2015.

The permitted units are owned by the Hog Bayou Energy Center located in Mobile, AL. The primary components of Hog Bayou are:

- One Combined Cycle Combustion Turbine (CCCT) with one Heat Recovery Steam Generator (HRSG) to include a Duct Burner (DB) and one steam turbine (ST).
- One emergency Fire Pump Engine

Hog Bayou has requested a permit shield in their Title V application. The regulations for which Hog Bayou requests the permit shield can be found in Section 4.0 of their Title V application titled “Regulatory Applicability.”

<u>Significant Changes to Permit</u>

Under this renewal of the permit, the units at this facility are no longer subject to the requirements under the Clean Air interstate Rule (CAIR) and are now subject to those under the Cross-State Air Pollution Rule (CSAPR).

Under this renewal of the permit, the requirements for the emergency fire pump engine under 40 CFR 63 subpart ZZZZ have been added.

One Combined Cycle Combustion Turbine with one Heat Recovery Steam Generator and One Duct Burner and one Steam Turbine

The CCCT is designed to combust natural gas or distillate fuel oil. The duct burners are designed to combust natural gas only. NO_x emissions from the CT are reduced by using low NO_x combustors during combustion of natural gas and water injection during combustion of fuel oil. NO_x emissions during the combustion of natural gas are also reduced through the use of Selective Catalytic Reduction (SCR) in the HRSG.

The CCCT was subject to a Prevention of Significant Deterioration (PSD) Review in which BACT was established for NO_x, CO, PM and VOCs. The combustion turbine is also subject to the Federal New Source Performance Standards (NSPS) contained in 40 CFR Part 60 Subpart GG, and the duct burner is subject to NSPS Subpart Da. The unit is also subject to the Acid Rain Program and the CSAPR. The emissions standards and expected emissions for the unit are listed below.

Emission Standards

The following emission standards shall apply at all times except for startup, shutdown, or load change:

Nitrogen Oxides (NO_x):

- NO_x emissions shall not exceed 75 ppmv from the combustion turbine adjusted for heat rate and fuel bound Nitrogen (4 hr rolling average)

  (40 CFR 60 Subpart GG)

- NO_x emissions from the combustion turbine shall not exceed 0.167 lb/MMBtu & 331.0 lb/hr while firing fuel oil (3 hr rolling average)

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

- NO_x emissions shall not exceed 1.6 lb/MWh from the duct burner

  (40 CFR 60 Subpart Da)

- NO_x emissions from the combustion turbine and the duct burner combined shall not exceed 0.013 lb/MMBtu & 32.4 lb/hr while firing natural gas

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

- NO_x emissions from the combustion turbine and the duct burner combined shall not exceed 0.167 lb/MMBtu & 377.8 lb/hr while firing fuel oil (3 hr rolling avg)

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

Sulfur Dioxides (SO_2):

- SO_2 emissions from the combustion turbine shall not exceed 0.015 by volume at 15% O_2 on a dry basis or Sulfur content of fuels ≤ 0.8% by weight

  (40 CFR 60 Subpart GG)

- SO_2 emissions from the combustion turbine shall not exceed 0.049 lb/MMBtu & 97.0 lb/hr while firing fuel oil

  (ADEM Admin. Code r. 335-3-14-.04 Anti-PSD)

- SO_2 emissions from the duct burner shall not exceed 0.20 lb/MMBtu

(40 CFR 60 Subpart Da)

- SO_2 emissions from the combustion turbine and the duct burner combined shall not exceed 0.00094 lb/MMBtu & 1.7 lb/hr while firing natural gas

  (ADEM Admin. Code r. 335-3-14-.04 Anti-PSD)

- SO_2 emissions from the combustion turbine and the duct burner combined shall not exceed 0.038 lb/MMBtu & 97.6 lb/hr while firing fuel oil

  (ADEM Admin. Code r. 335-3-14-.04 Anti-PSD)

Carbon Monoxide (CO):

- CO emissions from the combustion turbine shall not exceed 0.0608 lb/MMBtu and 101.0 lb/hr while firing fuel oil

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

- CO emissions from the combustion turbine and duct burner combined shall not exceed 0.040 lb/MMBtu and 99.3 lb/hr while firing natural gas

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

- CO emissions from the combustion turbine and duct burner combined shall not exceed 0.058 lb/MMBtu and 147.8 lb/hr while firing fuel oil

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

Particulate Matter (PM):

- PM emissions from the combustion turbine shall not exceed 0.014 lb/MMBtu & 17.0 lb/hr while firing fuel oil

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

- PM emissions from the duct burner shall not exceed 0.003 lb/MMBtu

  (40 CFR 60 Subpart Da)

- PM emissions from the combustion turbine and duct burner combined shall not exceed 0.009 lb/MMBtu & 14.2 lb/hr while firing natural gas

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

- PM emissions from the combustion turbine and duct burner combined shall not exceed 0.011 lb/MMBtu & 21.7 lb/hr while firing fuel oil

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

Opacity:

- Opacity from the duct burner shall not exceed 20% except for one 6 min. period per hour of less than 27%

  (40 CFR 60 subpart Da)

- Opacity from the combustion turbine and duct burner combined shall not exceed 10%

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

Volatile Organic Compounds (VOC):

- VOC emissions from the combustion turbine shall not exceed 0.0041 lb/MMBtu and 7.5 lb/hr while firing fuel oil

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

- VOC emissions from the combustion turbine and duct burner combined shall not exceed 0.0074 lb/MMBtu and 14.3 lb/hr while firing natural gas

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

- VOC emissions from the combustion turbine and duct burner combined shall not exceed 0.008 lb/MMBtu and 18.6 lb/hr while firing fuel oil

  (ADEM Admin. Code r. 335-3-14-.04(9)(b) BACT)

Expected Emissions

Hog Bayou has the capability to fire natural gas (≥ 90% use) and distillate fuel oil (≤ 10% use) in the CT. For this reason, there are two scenarios of expected emissions for the CT. “Fuel Oil” refers to the maximum allowable amount of fuel oil combusted (9,100,000 gallons of fuel oil or 639 hours/year fuel oil use). “Natural Gas” refers to only natural gas combustion. The duct burner can only fire natural gas. The expected emissions are:

Nitrogen Oxides (NO_x):

- During initial compliance testing, the maximum NO_x emission rates as calculated by the Department were as follows:

Fuel	**NO_x (lb/MMBtu)**	**NO_x (lb/hr)**
Natural Gas	0.0112	18.62
Fuel Oil	0.116	242

Sulfur Dioxide (SO_2):

- During initial compliance testing, the SO_2 emission rate calculated by the Department was 0.03 lb/MMBtu and 62.2 lb/hr while firing fuel oil. Minimal

SO_2 emissions would be expected while burning natural gas.

Carbon Monoxide (CO):

- During initial compliance testing, the maximum CO emission rates as calculated by the Department were as follows:

Fuel	NO_x (lb/MMBtu)	NO_x (lb/hr)
Natural Gas	0.01	5.82
Fuel Oil	0.0012	1.77

Particulate Matter (PM):

- During initial compliance testing, the PM emission rates as calculated by the Department were as follows:

Fuel	PM (lb/MMBtu)	PM (lb/hr)
Natural Gas	0.0039	8.61
Fuel Oil	0.0074	15.3

Opacity:

- No visible emissions were observed during initial source testing.

VOC:

- During initial compliance testing, the VOC emission rates as calculated by the Department were < 0.0001 lb/MMBtu and < 1 lb/hr while burning natural gas and fuel oil.

Compliance Assurance Monitoring (CAM)

Nitrogen Ocides (NO_x):

- This unit is a major source of NO_x pollutants. This is the only pollutant subject to CAM since it is the only pollutant controlled by an active control device and has the potential to emit more than 100 tons per year. However, according to 40 CFR §64.2(b)(vi) the Continuous Emissions Monitoring System (CEMS) demonstrates sufficient compliance with CAM requirements because it meets the standards for a monitoring device for NO_x monitoring under the Acid Rain Program.

SO_2 and CO:

- This unit has the potential to emit greater than 100 tons per year of CO, and this unit is not a significant source of SO_2. There are no active control devices for these pollutants. As a result, they are not subject to CAM.

VOC and PM:

- The potential emissions for VOC and PM are well below the 100 tons per year threshold. There are also no active controls for these pollutants; therefore, these pollutants are not subject to CAM requirements.

Continuous Emissions Monitoring Systems (CEMS)

Under the requirements of the Acid Rain Program, CEMS are required for these units. CEMS are installed for monitoring of NO_x emissions and also satisfy the CAM requirements for this unit.

Recordkeeping and Reporting

- Hog Bayou is required to keep a record of the sulfur content of the fuel oil combusted in the turbine in a form suitable for inspection for at least five years

  (ADEM Admin Code r. 335-3-14-.04)

- Hog Bayou is required to keep a record of monthly and 12-month rolling total of fuel oil usage in the combustion turbine in a form suitable for inspection for at least five years

  (ADEM Admin. Code r. 335-3-16-.05(c))

- Hog Bayou is also required to submit a report of any excess emissions from the combined turbine / duct burner stack during each calendar quarter no more than thirty (30) days after the end of each calendar quarter.

  (ADEM Admin. Code r. 335-3-16-.05(c))

Cross State Air Pollution Rule (CSAPR):

According to ADEM Admin. Code r 335-3-5-.06 through r 335-3-5-.36 and ADEM Admin. Code r 335-3-8-.07 through r 335-3-8-.65, these units are subject to the applicable provisions of Cross-State Air Pollution Rule (CSAPR) to include all applicable provisions of the SO2 Group 2 Trading Program requirements as well as all applicable provisions of the NO_x Annual Trading Program requirements.

Existing 240 BHP Fire Pump Engine

This emergency firewater engine is subject to 40 CFR 63, Subpart ZZZZ, because it was manufactured before the applicability dates in 40 CFR Part 60 Subpart IIII. This emergency engine is not subject to 40 CFR Part 60 Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines) because it was manufactured before the applicability date of April 1, 2006. This emergency engine is subject to the applicable requirements in 40 CFR Part 63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE)).

Emission Standards

- Hog Bayou must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

  (40 CFR §63.6604(b))

- Hog Bayou must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop their own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions

  (40 CFR §63.6625(e)(3))

- Hog Bayou must install a non-resettable hour meter if one is not already installed.

  (40 CFR §63.6625(f))

- Hog Bayou must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to Subpart ZZZZ apply.

  (40 CFR §63.6625(h))

Operational

- Hog Bayou must change oil and filter every 500 hours of operation or annually, whichever comes first.

  (40 CFR §63.6603(a))

- The fire engine may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of this unit is limited to 100 hours per year. There is no time limit on the use of this unit in emergency situations. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year . This unit may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in 40 CFR 63 Subpart ZZZZ, is prohibited.

  (40 CFR §63.6640(f))

Expected Emissions

The expected emissions are based on AP-42 emission factors, manufacturer's certifications, and a maximum operation of 500 hours per year. The expected emissions of the firewater pump engine subject to Subpart ZZZZ – Existing Firewater Pump Emergency Engines are shown below:

Pollutant	240 BHP Emergency Fire Engine	
	lb/hr	TPY
PM_{10}/ $PM_{2.5}$	0.007	0.03
SO_2	0.027	0.12
NO_X	0.098	0.43
CO	0.018	0.08
VOC	0.007	0.03
HAP	--	0.002
CO_2e	--	63.67

Compliance Assurance Monitoring (CAM)

This engine does not have the potential to emit greater than 100 tons of any of the above-referenced pollutants and has no active control devices; therefore, it is not subject to CAM requirements.

Recordkeeping and Reporting

- The Permittee must keep records of the parameters that are analyzed as part of the oil analysis program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. These records shall be maintained in a manner suitable for inspection for a period of 5 years from record generation.

  (40 CFR §63.6625(i))

- The Permittee must keep records of the maintenance conducted on these units in order to demonstrate that you operated and maintained these units and after-treatment control device (if any) according to your own maintenance plan or according to manufacturer's written instructions. These records shall be maintained in a manner suitable for inspection for a period of 5 years from record generation.

  (40 CFR §63.6655(e))

- The Permittee must keep records of the hours of operation of each engine that is recorded through the non-resettable hour meter. The facility must document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation. These records

shall be maintained in a manner suitable for inspection for a period of 5 years from record generation.

(40 CFR §63.6655(f))

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Date